CLAIMS

What is claimed is:

1. A reflector body, comprising:

a curved body portion, including:

(i) a first inner surface conformable about a first geometric curve; and

(ii) a second inner surface conformable about a second geometric curve; and

a light discharge end operable to discharge light rays incident on each of the first and second inner surfaces.

2. The reflector of Claim 1, comprising an outer surface conformable about the first geometric curve.

3. The reflector of Claim 2, comprising:

a first wall thickness between the outer surface and the first inner surface; and

a second wall thickness between the outer surface and the second inner surface;

wherein the second wall thickness is greater than the first wall thickness.

4. The reflector of Claim 2, comprising:

a transition area formable between the first inner surface and the second inner surface; and

a plurality of through apertures spaced about the curved body portion;

wherein each aperture is formable between the outer surface and the transition area.

5. The reflector of Claim 4, wherein each aperture is oriented normal to the outer surface.

6. The reflector of Claim 4, wherein each aperture is oriented at an acute angle to the outer surface, the acute angle measurable from a horizontal axis of the reflector.

7. The reflector of Claim 1, comprising:

the first geometric curve being configurable as a first ellipse; and

the second geometric curve being configurable as a second ellipse, the second ellipse concentrically positionable within the first ellipse.

8. The reflector of Claim 1, comprising:

the first geometric curve being configurable as a first parabola; and

the second geometric curve being configurable as a second parabola, the second parabola concentrically positionable within the first parabola.

9. The reflector of Claim 1, wherein each of the first and second inner surfaces comprise a reflective surface.

10. The reflector of Claim 1, comprising:

a mount end;

wherein the curved body portion is integrally joined to the mount end.

11. A reflector assembly, comprising:

at least one reflector body including:

(i) an inner cavity including:

(a) a first inner surface conformable along a first geometric curve; and

(b) a second inner surface conformable along a second geometric curve; and

(ii) an outer surface conformable about the first geometric curve;

a plurality of through apertures spaced about the reflector body, each aperture formable between the outer surface and a transition region between the first inner surface and the second inner surface;

a coolant flow source operably directing a coolant toward the at least one reflector body;

wherein a first portion of the coolant contacts the outer surface, and a second portion of the coolant is directable by the apertures into the inner cavity.

12. The assembly of Claim 11, comprising a plenum housing circumferentially surrounding at least the reflector body, the plenum housing operably directing the first portion of the coolant about the outer surface.

13. The assembly of Claim 12, wherein the coolant flow source is alignable with a reflector body longitudinal centerline, the coolant flow source initially operably directing the coolant within the plenum housing and substantially parallel to the longitudinal centerline.

14. The assembly of Claim 12, comprising:

a joined pair of reflector bodies having oppositely facing light discharge ends; and

the coolant flow source being alignable perpendicular to a common longitudinal centerline of the pair of reflector bodies, the coolant flow source operably directing the coolant within the plenum housing and initially substantially perpendicular to the common longitudinal centerline.

15. The assembly of Claim 11, wherein the reflector body comprises:

a first end having an electrically nonconductive support; and

a second open end.

16. The assembly of Claim 15, comprising an arc lamp positionable within the inner cavity.

17. The assembly of Claim 16, comprising:

a first lead wire electrically connectable to the arc lamp through the nonconductive support; and

a second lead wire electrically connectable to the arc lamp through the open end of the reflector body.

18. The assembly of Claim 17, comprising:

a bulb mount connectably disposed across the open end of the reflector assembly and operably supporting the second lead wire; and

a plurality of coolant flow discharge ports formable in the bulb mount.

19. The assembly of Claim 12, wherein the coolant flow source comprises a fan connectably mountable to the plenum housing.

20. The assembly of Claim 16, wherein the arc lamp is axially positionable adjacent the nonconductive support such that the coolant entering the apertures is directably discharged away from a direct impingent path with the arc lamp.

21. The assembly of Claim 16, comprising an internal edge of the second inner surface adjacent to each aperture, wherein any one of a plurality of light rays generated by the arc lamp strikes one of the internal edge and the first inner surface but is precluded by the internal edge from entering any one of the apertures.

22. The assembly of Claim 11, wherein the coolant comprises a gas.

23. The assembly of Claim 22, wherein the gas comprises air.

24. A method to construct a reflector assembly, comprising:

forming an inner cavity of a reflector body about concentric geometric curves;

reducing a reflector body wall thickness in an area local to a light discharge end of the reflector body;

creating a plurality of apertures through the reflector body outside of the area having reduced wall thickness;

aligning a coolant source with the apertures; and

positioning an arc lamp within the reflector body away from a direct impingement path between a coolant entering the apertures and the arc lamp.

25. The method of Claim 24, comprising positioning the plurality of apertures such that a plurality of light rays from the arc lamp completely reflect out of the light discharge end and are precluded from directly entering the apertures.

26. The method of Claim 24, comprising positioning the plurality of apertures on a common arc transposed about the outer wall.

27. The method of Claim 24, comprising creating the plurality of apertures through the reflector body immediately adjacent to the area having reduced wall thickness.

28. The method of Claim 24, comprising:

forming a first inner wall along a first ellipse; and

creating a second inner wall about a second ellipse, the second ellipse locatable concentrically within the first ellipse.

29. The method of Claim 24, comprising

forming a first inner wall about a first parabola; and

creating a second inner wall about a second parabola, the second parabola locatable concentrically within the first parabola.

30. The method of Claim 24, comprising positioning the arc lamp along a longitudinal centerline of the reflector body.

31. The method of Claim 24, comprising joining a pair of reflector bodies along a common longitudinal centerline.

32. The method of Claim 24, comprising:
enclosing the reflector body within a plenum housing; and
connecting the coolant source to the plenum housing.